Impact of Fatigue and Sleep Quality upon the Quality of Life of Haemodialysis Recipient Patients

اثر التعب وجودة النوم علي نوعية حياة مرضى التنقية الدموية

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الخلاصة

الخلفية: يواجه مرضى الفشل الكلوي النهائي والخاضعين لجلسات التنقية الدموية الكثير من التحديات بسب حالتهم والتي تجعلهم يعانون من التعب واضطربات النوم والموثرة عليجودة حياتهم نتيجة للمرض.

الهدف: تهدف الدراسة الي معرفة اثر التعب واضرابات النوم الشديدة علي جودة الحياة بين مرضي الفشل الكلوي النهائي والخاضعين لجلسات التنقية الدموية المتكررة.

المنهجية : دراسة وصفية أجريت للفترة من (كانون الثاني ٢٠١٤) الي (حزيران ٢٠١٤) وتكونت العينة من ٢٢١ مريضا مصابا بالفشل الكلوي النهائي والخاضعين لجلسات التنقية الدموية المتكررة بمستشفي سوهاج الجامعي. وكانت خصائص العينة(كل من له ملف في المستشفى وخاضع للتنقية الدموية مدة لا تقل عن ٦ اشهر، ذكور/إناث، متعلم /غير متعلم، قادر على إعطاء الموافقة،الموافقة على إجراء البحث، ليس لدية مشاكل نفسية ولا عقلية). وقد تم جمع البيانات عن طريق المقابلة الشخصية مع المرضي أنفسهم كل على حده أثناء الجلسات أوإثناء الانتظار وذلك باستخدام (استمارة البيانات الشخصية و مؤشر بيتسبيرج لقياس جودة النوم و مقياس شدة التعب واستبيان تقييم جودة الحياة)، وتم تحليلها إحصائيا.

النتائج : أظهرت الدراسة أن متوسط اعمارمرضى الفشل الكلوي النهائي13.1 ± 42.3 و معظمهم من الرجال ويخضعون لجلسات التنقية الدموية من ٣-٤ جلسات أسبوعيا و مدة الجلسة أكثر من ٣ ساعات ولهم أكثر من ٣ سنوات. كما وجد أن ٨٤.٢% من هولاء المرضى يعانون من التعب وان الاناث كانو اكثر معاناة من الذكور وأن ٨٧.٣ % منهم يعانون من فقر النوم وجودة الحياة لديهم منخفضة و أن الذكور والاصغر سنا كانت جودة الحياة لديهم أعلى مقارنة"بالفئات العمرية الاخر. كما وجد علاقة ايجابية وذا دلالة إحصائية بين السن وكل من: المحورين الرئيسين لجودة الحياة العقلي والبدني والنوم والتعب، كما وجدت علاقة سلبية وذا دلالة إحصائية بين النوم والتعب وجودة المحورين العقلي والجسمي بينما لم نجد أي علاقة ذا دلالة إحصائية بين تاريخ التنقية وعدد مرات الجلسات وباقي المتغيرات الاخر.

التوصيات : توصي الدراسة على أهمية إنشاء وحدة تأهيل كلوي تعتمد علي فريق طبي متكامل ذو خبرة عالية تكون وظيفتها الأساسية متابعة المرضى المحتاجين للدعم النفسي والاجتماعي قبل جلسات التنقية الدموية وتمتد إلي فترة إجراء الجلسات مع الحاجة لمزيد من الدراسات البحثية عن جودة الحياة لهؤلاء المرضى لمساعدتهم علي اجتياز هذه المحنة والتكيف مع الاثار السلبية للمرض.

Abstract/

Background: Patients with End-stage renal failure face many challenges due to their condition, which may leave them feel fatigued, depressed and lack in sleep quality associated with poor quality of life.

Aim: Determining the impact of fatigue and sleep quality upon the quality of life of haemodialysis recipient patients.

Methodology: The study was conducted in haemodialysis unit at Sohag University Hospital from January 2014 to June 2014. A purposive sample of 221 patients with ESRD were treated by Haemodialysis. Personal Information Form (PIF), QoL Short Forme-36(SF-36), Pittsburgh Sleep Quality Index (PSQI) and Fatigue Severity Scale (FSS) tools are used for data collection. Data was analyzed through descriptive statistical approach(frequency and percentage) and inferential approach (mean of score, Pearson correlation coefficient, ANOVA test and independent samples t-test).

Results: The mean age ± SD of patients was 42.3 ± 13.1 years. The study found that 87.3% of patients were poor sleepers (global PSQI ≥5), 84.2% were suffering from fatigue, and quality of life mean was 33.6±17.5. According to age and sex, it was found that the younger and male patients were less complaining from fatigue and poor sleep. They have better quality of life compared to other groups. There was a significant positive correlation between age and both physical and mental components scores, sleep and fatigue. Also a negative correlation was found between physical and mental components scores and sleep and fatigue**.**

Conclusions: Haemodialysis patients had poor quality of mental and physical health. The quality of life was impaired as seen by poor sleep and fatigue. It is suggested that these patients require the attention of health caregivers for the need of possible psychological support.

Keywords: End-Stage Renal Disease(ESRD),Nephrology nurses, Haemodialysis(HD), Quality of Life(QoL), Pittsburgh Sleep Quality Index (PSQI), Fatigue Severity Scale(FSS), Patient Million Population (PMP), Physical Component Summary(PCS), Mental Component Summary(MCS).

INTRODUCTION

End-stage renal disease (ESRD) is a debilitating, chronic condition whereby the kidney failure requires artificial means of excretion for survival. The primary means to

achieve this are by peritoneal dialysis or haemodialysis (done several times weekly). Consequently, patients with ESRD undergo a number of lifestyle, dietary, and fluid restrictions in order to accommodate their illness[1].

The incidence of ESRD in the Egyptian population was 200 pmp [2], and about 276 pmp in Sohag Governorate [3], incidence of ESRD rising in the last 10 years from 225 to 460 pmp and there are 40.000 new cases annually (4,5). The ESRD and replacement therapies predispose individuals to various physical and psychological complications associated with poor QoL[6].

In the past, most studies showed the relationship between sleep quality and QoL in HD patients [7,8]. Another study by Shdaifat and Abdul Manaf assessed the QoL of caregivers and DH patients[9], some studies showed that end-stage renal disease undergoing dialysis therapy was correlated with fatigue[10-11], whereas QoL [12] was interpreted of quality of life outcome amongst ESRD patients. Another study by Ayoub, et al.(4) compared HRQoL between HD patients and a community sample. While the present study was conducted to determine the effect of both, sleep quality and fatigue together upon the quality of life on haemodialysis patients. The rich information, which will be collected, about these patients could help nurses and nephrologists to determine which patients may be at risk for diminished health-related QoL and determine the impact of sleep quality and fatigue upon it. Therefore, the aim of the study was to determine the impact of fatigue and sleep quality upon the quality of life of haemodialysis recipient patients.

Research hypothesis:

It hypothesized that both fatigue and poor sleep quality resulted from complications of dialysis procedure affected quality of life among haemodialysis recipient patients.

SUBJECTS AND METHODS:

Research design and Setting: A descriptive study was conducted in haemodialysis unit at Sohag University Hospital from (January 2014 to June 2014).

Subjects: A purposive sample of 221 adult patients receives regular HD. Patients were selected according to the following criteria: on maintenance HD not less than six months, patients with an active file in the hospital and receiving regular HD, male\female, literate / illiterates, able to give informed consent and welling to participate in the study. Patients with recognized mental difficulties and those who refused to participate later was excluded.

Tools of data collection: Four tools were used in this study, these are:

Tool I: Personal Information Form and Present Medical History: It was constructed by the researcher and included data about the research sample such as age, sex, level of education, working status, primary causes of ESRD, history and frequency of HD and duration of session. **Tool II: Quality of Life Short Form-36(SF-36):** the Arabic [13] and the English [14] versions were used. The questionnaire included eight subscales (physical and social functioning, role limitations due to physical or emotional problems, mental health, energy \ fatigue, pain and, general health perceptions).The scale can be summarized into two component scores (physical and mental components summary scores). Score ranges from (0 to 100) the higher the score, the better the QoL[14].

Tool III: Pittsburgh Sleep Quality Index (PSQI): It is an effective instrument used to measure the quality and patterns of sleep in the adult patients. It differentiates “poor” from “good” sleep by measuring seven areas: sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction over the last month. Scoring of answers is based on a 0 to 3 scale, where by 3 reflects the negative extreme on the Likert Scale. From the sum of 7 component scores, the global PSQI score was

calculated (0-21). A patient with a global PSQI score >5 is considered a bad sleeper and a patient having a value of ≤5 is considered a good sleeper [15].

Tool IV: Fatigue Severity Scale(FSS): It is a method of evaluation of the level of fatigue and it contains nine statements. Participants are asked to read each statement and circle a number from 1 to 7, based on how accurately it reflects their condition during the past week and the extent to which they agree or disagree that the statement applies to them. A low value indicates that the statement is not very appropriate whereas a high value indicates agreement. A total score of < 36 suggests that you may not be suffering from fatigue. A total score of ≥36 suggests that you may need further evaluation by a sleep physician [16].

Validity and Reliability:

Prior to data collection, tools were tested by a panel of 7 experts in this field, 2 nephrology consultants, 2 nursing academics and 3 psychology academics after translation to Arabic according to PSQI and FSS tools. The reliability was assessed using Cronbach′s alpha (0.79). Finally, the questionnaire was pre-tested on a group of 10% of the sample in selected setting in order to evaluate the feasibility and applicability and some modifications were done according to the pilot study findings.

Data Collection Procedure:

Prior to data collection, ethical approval was obtained from the relevant research ethical committee in the faculty of Nursing, Sohag-University, to approve the study. In addition, official permission to conduct the current study was obtained from the director of the hospital and head of dialysis unit, prior to data collection. Enrolled patients completed the questionnaire during the dialysis sessions or waiting time after receiving complete explanation about the study aim and purpose. Assistance was given for patients in reading and understanding the questions, and all patients filled out the questionnaire by themselves except in the case of illiterate patients; the questionnaire was filled out by the researcher, with the help of verbal communications and each patient spent approximately (25-30 m) to respond to the interview. According to demographic and medical history, data were collected from hospital charts and/or direct questioning of the patients. Patients were fully informed of their rights to withdraw from participation in the study if desired. Confidentiality was assured to all subjects to get their cooperation and informed consent was taken from the subjects.

Statistical Design:

The data were analyzed using parametric tests and presented in term of mean, standard deviation(SD) of the mean and percentages. Statistical analysis was done using SPSS Ver. 16. ANOVA and independent samples T-test were used for evaluation of the results. Person correlation coefficient was used to test correlation between variables. Differences were considered significant at $p < 0.05$.

RESULTS:

Table (1): Characteristics of the 221patients who included in the study

Characteristics	Data
Age group: (years)	
< 30	38(17.2)
30 - <40	43 (19.5%)
40 - < 50	70 (31.7%)
≥ 50	70 (31.7%)
Mean ± SD; Range	42.3 ± 13.1; 17.0 – 81 years
Female/male (n)	122 (55.2)/99 (44.8)
Educational level:	
Illiterates	80 (36.2)
Read and write	36 (16.3)
Primary school	64 (29)
Secondary school	27 (12.2)
Tertiary	14 (6.3)
Working status	
Works	42 (19.0)
Don't work	179 (81.0)
Total QOL **(Mean ± SD; Range)**	33.6±17.5; 8.1-84.1

***M\F: Male/Female**

Table 1. Shows the characteristics of the 221 subjects included in the study: age range 17-81years with mean 42.3±13.1 years. Out of them, 99 (44.8%) were females and 122(55.2%) were males. Fourteen (6.3%) of the patients only were tertiary graduates, while 80(36.2%) were illiterates and, mostly do not work(81.0%).

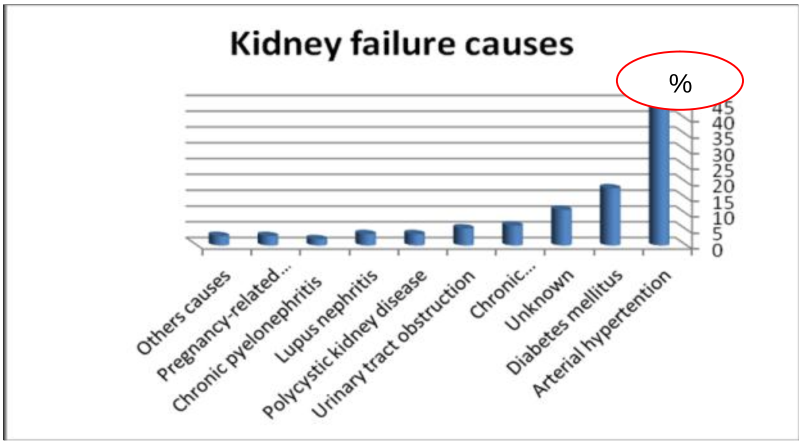
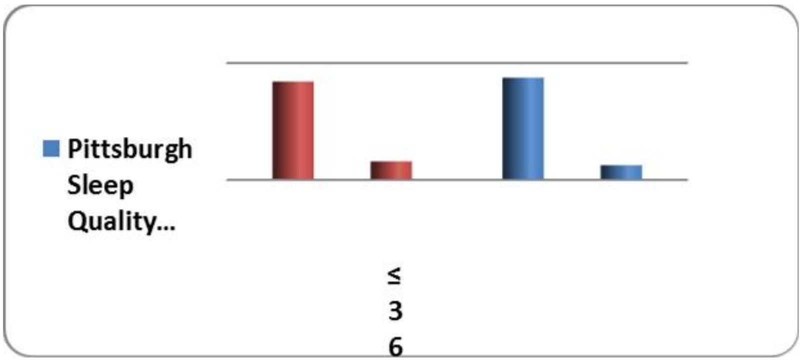


Figure (1) Percentage distribution of the primary causes of ESRD

Figure (1) illustrates the different causes of ESRD among patients at the time of the study. The commonest cause was hypertension (44.3%) followed by diabetes mellitus (18.1%), which was the second leading cause.



Figure(2) Percentage distribution of the sleep quality and fatigue severity among patients of the study.

Figure (2) portrays the frequency distribution of the sleep quality and fatigue severity in HD patients. It was found that, majority (87.3%) of the patients were poor sleepers, while twenty-eight (12.7%) of them only were good sleepers. In addition, it was found that 84.2% of the patients were suffering from fatigue while thirty-five (15.8%) patients don't have fatigue.

Table (2): Distribution of the haemodialysis patients according to medical history

Present-Medical History	Data No. (%)
Frequency of dialysis/week:	
1-2 sessions/ week	**47 (21.3)**
3- 4 sessions/ week	**174 (78.7)**
History of dialysis:	
<1 years	**13 (6.0)**
1–3 years	**78 (35.2)**
> 3 years	**130 (58.8)**
Mean ± SD	**4.4 ± 3.0**
Duration of session:	
2-3 hours/sessions	**48 (21.7)**
> 3 hours/sessions	**173 (78.3)**
Mean ± SD	**3.8 ± 0.5**

Table (2) clarifies the frequency distribution of patients according to medical history. It can be noted from this table that, the majority of subjects (78.7%) had attended from 3-4 sessions/week, duration of session was more than 3 hours/session, and more than half of them (58.8 %) had history of dialysis for more than 3 years.

Table (3): Correlation between physical, mental components summary, fatigue, sleep quality, age and the other variables in all patients

Variable		Duration of session	Duration of disease	Frequency of dialysis	Physical	Mental	Sleep	Fatigue
Physical	r-value	-0.008	-0.033	0.004	1			
	P-value	0.902	0.628	0.949	0			
Mental	r-value	-0.008	-0.056	0.076	0.885	1		
	P-value	0.909	0.410	0.265	0.000*	0		
Sleep	r-value	-0.027	0.077	0.054	-0.651	-0.601	1	
	P-value	0.689	0.257	0.426	0.000*	0.000*	0	
Fatigue	r-value	0.044	0.056	0.024	-0.712	-0.693	0.503	1
	P-value	0.514	0.409	0.720	0.000*	0.000*	0.000*	0
Age	r-value	0.072	0.020	0.085	0.269	0.256	0.247	0.129
	P-value	0.288	0.770	0.208	0.00*	0.00*	0.00*	0.08*

MCS=Mental component summery; PCS= Physical component summery *Statistical significant difference (P < 0.05)

Table(3) shows the correlation between two major MCS and PCS, sleep, fatigue, age and the other variables. The study highlighted that, no significant correlation was found between history of dialysis, frequency of dialysis and duration of session and all patients variables (p>0.05). On the other hand, it was found a positive significant correlation between age, both physical and mental components, sleep and fatigue. A similar trend was found between fatigue and sleep. While an inverse correlation was found between both fatigue, sleep quality and quality of MCS and PCS scores.

Table (4): Comparison of QOL, PSQI components and Fatigue with sex of the study group

Components	Subscales	Male Mean ± SD	Female Mean ± SD	P.Value
Physical component summary	Total QOL	35.35 ± 17.84	31.40 ± 17.10	0.098
	Physical function	42.03 ± 27.21	32.55 ± 26.32	0.010*
	Role physical	9.15 ± 26.25	8.93 ± 25.45	0.951
	Role emotional	23.24 ± 39.85	15.13 ± 33.49	0.109
	Energy/ fatigue	36.06 ± 20.81	35.10 ± 17.80	0.718
	Total	33.56 ± 17.07	28.51 ± 16.22	0.026*
Mental component summary	Emotional well being	45.77 ± 20.68	46.37 ± 20.23	0.830
	Social function	48.49 ± 26.80	46.17 ± 26.65	0.522
	Pain	46.12 ± 31.78	34.77 ± 28.58	0.006*
	General health	33.21 ± 15.39	30.87 ± 14.14	0.245
	Health change	47.15 ± 29.55	41.57 ± 29.38	0.163
	Total	36.53 ± 17.57	34.55 ± 16.97	0.399
Sleep quality component	Subjective sleep quality	1.97 ± 0.91	2.07 ± 0.80	0.377
	Sleep latency	1.89 ± 1.15	2.24 ± 0.98	0.017*
	Sleep duration	1.96 ± 1.04	1.86 ± 1.12	0.485
	Sleep efficiency	2.11 ± 1.03	2.18 ± 1.02	0.575
	Sleep disturbance	1.50 ± 0.63	1.79 ± 0.63	0.001*
	Use of sleep medications	0.88 ± 1.06	1.22 ± 1.22	0.025*
	Daytime dysfunction	1.13 ± 0.96	1.15 ± 0.88	0.854
	Total	11.34 ± 4.49	12.49 ± 4.38	0.057
Fatigue		47.24 ± 14.11	51.23 ± 10.88	0.022*

Independent samples t-test *** Statistical significant differences (P < 0.05)**

Table (4) demonstrates the comparison of the mean scores of the QoL, sleep and fatigue with gender. It was found that, although the mean score of PCS and MCS components were higher in males than females, only a significant difference was found between the mean scores in the physical function and pain components (respectively 42.0±27.2 vs.32.5 ±26.3; p=<0.010, 46.1 ±31.7vs.34.7± 28.5;p =0.006). According to sleep quality, although the mean score of component PSQI was higher in females than males, but an independent T-test showed no significant difference between the two groups (p>0. 05), except in sleep latency, sleep disturbance and use of sleep medication were a significant difference. As well as, it there was a significant difference between male and female groups as regards to fatigue (p<0.05).

Table (5): Comparison of QOL, PSQI components and Fatigue with age of the research sample

Components	Subscales	Age (years)				P-value
		< 30	30 - < 40	40 - < 50	≥ 50	
		Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	
	Total QOL	43.44±18.56	30.31±14.20	31.84±17.12	32.04±17.88	0.002*
Physical component summary	Physical functioning	52.11±24.12	35.47±28.13	38.29±24.93	31.07±27.86	0.001*
	Role physical	17.76±35.31	5.23±20.09	8.21±23.97	7.50±24.21	0.133
	Role emotional	27.41±41.14	17.83±37.34	20.35±37.44	15.83±35.04	0.477
	Energy/fatigue	47.37±21.77	32.56±17.37	32.07±18.46	34.71±18.37	0.002*
	Total	40.9±17.29	28.94±13.58	29.24±15.65	29.67±18.06	0.002*
Mental component summary	Emotional well being	54.37±21.48	42.33±16.20	42.83±20.44	47.00±21.19	0.021*
	Social function	61.51±26.85	38.08±20.22	47.17±26.14	45.89±28.05	0.001*
	Pain	49.67±29.72	41.05±28.38	39.08±30.69	38.46±32.85	0.292
	General health	37.63±14.97	30.23±13.23	28.14±13.81	34.43±15.71	0.005*
	Health change	50.00±31.84	47.67±29.79	43.93±29.62	40.70±27.97	0.395
	Total	45.52±18.43	32.40±14.27	33.57±16.88	34.49±17.27	0.002*
sleep	Subjective quality	1.79±0.96	2.09±0.87	1.86±0.89	2.24±0.73	0.017*
	Sleep latency	1.87±1.07	2.35±0.92	2.03±1.10	1.99±1.16	0.206
Sleep quality component	Sleep duration	1.74±1.08	1.72±1.16	1.86±1.07	2.19±1.00	0.069
	Sleep efficiency	1.84±1.18	2.14±1.08	2.16±1.02	2.29±0.89	0.199
	Sleep disturbance	1.42±0.68	1.74±0.69	1.60±0.55	1.70±0.67	0.097
	Use of sleep medications	0.61±1.05	1.40±1.22	1.04±1.14	1.03±1.10	0.021*
	Daytime dysfunction	0.76±0.88	1.26±0.85	1.24±0.94	1.17±0.93	0.045*
	Total	9.95±4.78	12.63±4.23	11.70±4.66	12.56±3.99	0.017*
Fatigue		44.13±15.92	52.02±12.76	49.29±11.08	49.53±12.41	0.047

ANOVA t-test, * Statistical significant differences (P< 0.05)

The above table(5) depicts the comparison between the mean score of QoL, sleep quality and fatigue with age groups. It was found that the mean score of both physical and mental health components were featured higher in age group <30 years than other age groups with statistical significant differences found in the physical function, energy\fatigue, emotional well being, social function and general health (P<0.05). Also the study showed that, the younger patients were better sleepers than other groups(P<0.05). On the other hand, the study revealed a significant difference regarding fatigue severity scale between different age groups (p=<0.05).

DISCUSSION :

Findings of the present study indicated that, the mean age, related SD was 42.3±13.1, and just over half of our patients were males. AL-Jahdali et al. found similar results, 53.7% of the patients were males and 46.3% were females [17]. According to educational level, the study revealed that eighty of the patients were illiterates and a big bulk of them doesn't work. These results are in agreement with [18] who said that, the high prevalence of unemployment in our dialysis population and the majority of patients 80% had not completed high school [19]. With regard to etiology of primary renal disease, it is worth noting that, the two major causes were hypertension followed by diabetes nephropathy. This result is consistent with such findings by [20].

Referring to the medical history data, the study shows that the majority of the study sample had dialysis from three to four sessions/week, more than half of the study sample had history of dialysis for more than 3 years, and most of them (78.3%) had duration of HD session more than 3 hours/session. This result is in agreement with another reference [10].

The findings showed a high rate of sleep complaints (PSQI>5) in HD patients. These results correspond to data by another research who indicated that, poor sleep is common in dialysis patients and is associated with lower QoL[20].

It is worth noting that, the rate of patients suffering from fatigue was higher in HD patients. These results are in agreement with [21] who indicated that, prevalence of tiredness among dialysis patients is 82%. In the same line, Horigan et al. added that, the specific cause of fatigue remains unknown and multiple conditions are associated with its occurrence[22].

Female dialysis patients were poor in all components of QoL than their male counterparts with statistical significant difference in physical function and pain only($p<0.05$). These results are inconsistent with [9,23] who said that, independent T-test which was used to compare the QoL scores between male and female patients showed that, there was no significant difference between males vs. females. Turkmen et al. added that, HD causes major change in patients' lifestyles that affect their QoL and sleep quality[24]. In the study by Anees et al. reported that, QoL in patients with ESRD is influenced by the disease it self and by the type renal replacement therapy[25].

In the same line Moattari et al. said that, due to the physical, social, psychological, and cognitive complications of HD, nursing intervention based on a comprehensive approach are required for HD patients. Patients should be encouraged to actively participate in self-management of their disease [26].

In agreement with previous studies, it was found that there is a positive correlation between the age and both PCS and MCS components. These results concur with as earlier study by [27] who found that, all components of QoL decreased with growing age. On the other hand, the results were not consistent with another study who found that, age was not statistically correlated with QoL[4].

In this study, it was found that, there is a positive correlation between PCS and MCS components summary. These findings were inconsistent with what Knight et al. [28] have reported, that there is a very weak positive correlation between MCS score and PCS score. There are similar results by Eghbali et al. [29].

The current study revealed that, there is a negative correlation between PCS and MC scores and poor sleep quality, which is convenient with the results obtained from [30,31] who observed that, the poor baseline sleep quality was associated with lower PCS and MCS scores.

In addition, a negative correlation was found between PCS, MCS scores, and fatigue. These results are in agreement with [32] who reported that, fatigue and mood disturbance are common, and important symptoms associated with poor QoL among the ESRD patients.

These findings also are in accordance with Polaschek who said that, untreated fatigue might affect greatly QoL and might lead to increasing dependence on other [33].

Also, the study showed a significant correlation between fatigue and sleep quality. This result was similar to the one described in prior studies by Joshwa et al. indicating that, a positive correlation was found between fatigues and sleep disorders [10].

On the other hand, Pearson analysis failed to show any correlation between the duration and frequency of dialysis, duration of session, quality of PCS, MCS, sleep quality, and fatigue. These findings were consistent with Wasserfallen et al. reported that, QoL was not influenced by duration of dialysis treatment, but was statistically associated with the evolution of health state [34]. In another study applied by Parvan et al. It was found that, there was no significant relationship between haemodialysis years and QoL, sleep quality[7].

Also, the study indicated that the mean score of sleep quality in females were higher than males in all components except in sleep duration, while a significant difference was found in the sleep latency, sleep disturbance and use of sleep medications between the two groups. These results are in agreement with another study which found that, females was an independent predictor of poor sleep quality than males[35]. Interestingly, Unruh et al. found that, sleep quality is worse among male's patients vs. females [36].

The current study found that, the fatigue score was higher in female participants than males. This result is consistent with a study applied by Sajadi et al. who reported that, overall women have more fatigue than men when treated with HD [37].

Also the present study found that, younger patients were less affected by sleep disorders than other age groups with statistical significant differences. In the study by [38] who reported that, the prevalence of sleep disturbance in older adults was more than 30% of elderly reporting, such as impaired sleep quality and chronic difficulties with sleep performance, ranging from long latency period before falling asleep and frequent awakening at night to difficulties returning to sleep upon awakening. There are similar findings by [35].

Regarding to the effect of age on fatigue, it was found that, the younger patients were less affected by fatigue than other age groups. This finding commensurates with what Sajadi et al. has said; that fatigue increased as age increased[37]. In the same line, Horigan et al. added that, nephrology nurses are in an excellent position to collaborate with patients to determine how to use their support systems and individual strengths to help alleviate the effects of fatigue [22].

CONCLUSION:

In the light of the findings, it seems important that patients with severe ESRD had poor QoL physical and mental health. The severity of fatigue and sleep problems were significant indicators that correlated with the quality of physical and mental health. The study also showed that, the younger age, male patients were less affected by fatigue and sleeps disorders than other groups and better of QOL, while the history and frequency of dialysis and duration of session had no effect on QOL. As the quality of physical and that of mental health have a positive correlation with each other.

RECOMMENDATIONS:

1. Establishment of a renal rehabilitation unit from a well trained and experienced multi-disciplinary team for HD patients who require more psychological and social attention from the health care professionals in the pre-dialysis stage and continued after maintenance dialysis every session to help the patients accept the new condition and cope with negative impact of disease on life. It will be the most important work: help patients accept the new

condition and cope with the negative impact of disease on life, help the patients organize their activities to permit rest period when needed, improves QoL, and reduce morbidity and mortality rate, put patients management protocols to improve sleep quality, in addition to managing common medical problems.

2. Conduct further research studies to find out the effect of nursing interventions on health-related QOL, increased physical capacity, improved ESRD risk factor profile, and enhanced the reductions in long-term morbidity and mortality in HD patients.

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